Trig Final (Practice v15)
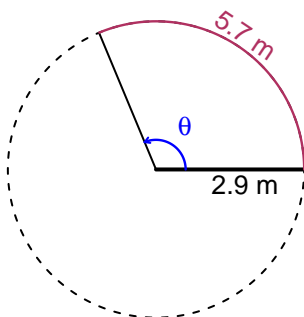
- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 5.7 meters. The radius is 2.9 meters. What is the angle measure in radians?
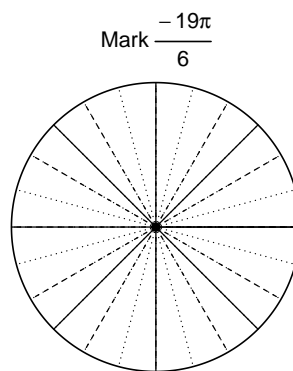

Question 2

Consider angles $\frac{15\pi}{4}$ and $\frac{-19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{15\pi}{4}\right)$ and $\sin\left(\frac{-19\pi}{6}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{15\pi}{4}$

Find cos(15π/4)

Mark $\dfrac{-19\pi}{6}$
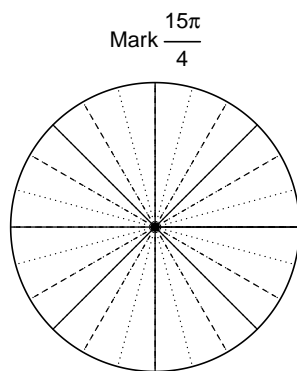
Find sin(−19π/6)

Question 3

If $\cos(\theta) = \frac{-20}{29}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 8.42 meters, a frequency of 2.38 Hz, and a midline at $y = 6.42$ meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).